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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,542	08/09/2001	Mark C. Sullivan	EYE-102	1986
7590	01/13/2004			
Brett C. Martin 1650 Tysons Boulevard McLean, VA 22102				
			EXAMINER BURD, KEVIN MICHAEL	
			ART UNIT 2631	PAPER NUMBER 15
DATE MAILED: 01/13/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/924,542

Applicant(s)

SULLIVAN, MARK C.

Examiner

Kevin M Burd

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 6-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

1. This office action, in response to the amendment filed 10/15/2003, is a final office action.

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 6-20 have been considered but are not persuasive.

Applicant states Krasner does not disclose storing a one-millisecond segment of the GPS signal in memory and converting the stored GPS signal to the frequency domain. However, Krasner discloses storing a plurality of segments of the received signal, each of the segments comprising one millisecond of data along with additional segments of data. All of these segments are used in the FFT process as stated in the previous office action and shown in figure 3 of Krasner.

For this reason and the reasons stated in the previous office action, the rejections of the claims are maintained.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -  
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under treaty defined in section 351 (a) shall have the effects for the purposes of this subsection of an

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application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 9-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Krasner (US 6,133,871).

Regarding claim 9, Krasner discloses a GPS receiver in figure 1A with a GPS antenna 40, a receiver front end 42, an analog to digital converter 44 and a digital snapshot memory 46 for storing a portion of the signal. Figure 3 discloses a flow chart of the invention of Krasner. After the portion of the signal is stored 104, an FFT process is initiated 112, the result is multiplied by a PN code 114. These code sequences belong to a family known as Gold codes (column 2, lines 1-9). An inverse FFT process is conducted 118 and a peak of the convolution is found 126. Krasner discloses storing a one-millisecond segment along with additional segments of information that is used in the process.

Regarding claim 10, the peak detector attempts to refine the estimate of the peak value (column 14, line 66 to column 15, line 17).

Regarding claim 11, the Gold code is precomputed and stored in memory (column 2, lines 10-15).

Regarding claim 12, the peak detector attempts to refine the estimate of the peak value (column 14, line 66 to column 15, line 17). This process is the "curve fitting routine".

Regarding claim 13, Krasner further discloses time shifting the signal for "d" seconds, which is equivalent to multiplying the Fourier Transform (column 14, lines 30-46).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6-8 and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krasner (US 6,133,871) in view of Halamek et al (US 5,912,558).

Regarding claim 6, Krasner discloses a GPS receiver in figure 1A with a GPS antenna 40, a receiver front end 42, an analog to digital converter 44 and a digital snapshot memory 46 for storing a portion of the signal. Figure 3 discloses a flow chart of the invention of Krasner. After the portion of the signal is stored 104, an FFT process is initiated 112, the result is multiplied by a PN code 114. These code sequences belong to a family known as Gold codes (column 2, lines 1-9). An inverse FFT process is conducted 118 and a peak of the convolution is found 126. Krasner does not disclose the snap shot memory stored only one millisecond of the received signal. Krasner discloses storing typically 100 to 1000 frames corresponding to a duration of 100 msec to 1 second duration (column 12, lines 8-15). Krasner also discloses this is only a typical amount and the invention can operate when a "sufficient amount" of data has been collected. It would have been obvious for one of ordinary skill in the art to use the minimal amount of this data, which still satisfies the "sufficient amount" limitation to

operate the system. One millisecond would correspond to one frame and is the absolute minimum, which could be used. By using the minimum number of frames, the size of the snap shot memory could be reduced and thereby reducing the cost of the receiver.

Krasner does not disclose means for determining the carrier frequency based on the height of the peak. Halamek discloses a CPU performing correlation designed to detect peaks and locating a maximum peak of the correlation estimate and sets the frequency of the radio transmitter to align with the peak which was located (column 4, lines 1-21). This takes place in the receiver. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the means for estimating the carrier frequency of Halamek into the system of Krasner. This allows all major processing of the signals to take place in the receiver minimizing the dependence on outside components.

Regarding claim 7, Krasner further discloses time shifting the signal for  $d$  seconds, which is equivalent to multiplying the Fourier Transform (column 14, lines 30-46).

Regarding claim 8, the Gold code is precomputed and stored in memory (column 2, lines 10-15).

Regarding claim 14, Krasner discloses a GPS receiver in figure 1A with a GPS antenna 40, a receiver front end 42, an analog to digital converter 44 and a digital snapshot memory 46 for storing a portion of the signal. Figure 3 discloses a flow chart of the invention of Krasner. After the portion of the signal is stored 104, an FFT process is initiated 112, the result is multiplied by a PN code 114. These code sequences belong

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to a family known as Gold codes (column 2, lines 1-9). An inverse FFT process is conducted 118 and a peak of the convolution is found 126. Krasner does not disclose the snap shot memory stored only one millisecond of the received signal. Krasner discloses storing typically 100 to 1000 frames corresponding to a duration of 100 msec to 1 second duration (column 12, lines 8-15). Krasner also discloses this is only a typical amount and the invention can operate when a "sufficient amount" of data has been collected. It would have been obvious for one of ordinary skill in the art to use the minimal amount of this data, which still satisfies the "sufficient amount" limitation to operate the system. One millisecond would correspond to one frame and is the absolute minimum, which could be used. By using the minimum number of frames, the size of the snap shot memory could be reduced and thereby reducing the cost of the receiver. Krasner does not disclose means for determining the carrier frequency based on the height of the peak. Halamek discloses a CPU performing correlation designed to detect peaks and locating a maximum peak of the correlation estimate and sets the frequency of the radio transmitter to align with the peak which was located (column 4, lines 1-21). This takes place in the receiver. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the means for estimating the carrier frequency of Halamek into the system of Krasner. This allows all major processing of the signals to take place in the receiver minimizing the dependence on outside components.

Regarding claims 15 and 17-20, the peak detector attempts to refine the estimate of the peak value (column 14, line 66 to column 15, line 17).

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Regarding claim 16, the Gold code is precomputed and stored in memory  
(column 2, lines 10-15).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### ***Contact Information***

**Any response to this final action should be mailed to:**

**Box AF**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

(703) 872-9314, (for formal communications; please mark  
"EXPEDITED PROCEDURE" or for informal or draft  
communications, please label "PROPOSED" or "DRAFT")



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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Burd, whose telephone number is (703) 308-7034. The Examiner can normally be reached on Monday-Thursday from 9:00 AM - 6:00 PM.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3800.



Kevin M. Burd  
PATENT EXAMINER  
1/7/04



TEMESGHEN GHEBRETINSAE  
PRIMARY EXAMINER